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EDITORIAL

GEORGE W YORK, EDITOR

Cover Them Over with beautiful flowers,
Deck them with garlands, those brothers of ours,
Lying so silent, by night and by day,
Sleeping the years of their manhood away.
Give them the meed they have won in the past;
Give them the honors their future forecast;
Give them the chaplets they won in the strife,
Give them the laurels they lost with their life.
Cover them over—yes, cover them over—
Parent, husband, brother and lover!
Crown in your hearts those dead heroes of ours,
And cover them over with beautiful flowers.

—*Will Carleton.*

The New Secretary of the Ontario Bee-Keepers' Association, we learn from the *Canadian Bee Journal*, is Mr. F. A. Gemmill, of Stratford. He was recently appointed in place of the late Mr. Corneil. Mr. G. is one of the most prominent and highly respected apiarists "over the line."

Profitable Bee-Keeping, by Mrs. Atchley, will continue for some time in her department of the BEE JOURNAL, at least each alternate week. Until further notice we can furnish the back numbers from May 1st, beginning with her "Lessons," to new subscribers who pay $1.00 for a year's subscription to the BEE JOURNAL—that is, we can commence their year with the number having the first lesson, if they so desire.

A Pure Honey Bill has been introduced into the Canadian legislature, and Mr. S. T. Pettit, with other bee-keepers there, are working hard to secure its passage. We hope they will succeed in making it a law, and then see to its strict enforcement. The United States needs something of the kind, and that right speedily. But nothing can be expected from Congress until the people of this country stop sending politicians to Washington with "axes to grind." What we need is honest representatives of the people, and not a lot of spoils-seeking misrepresentatives. No anti-adulteration laws can be expected from an "adulterated" Congress.

The Five-Banded Italians are given a good "send off" by Mr. J. W. Rouse, of Missouri, in the last *Progressive Bee-Keeper*. He says he is "sure they are superior in every respect, as a whole." Mr. Rouse is one of Missouri's best bee-men and apiarian writers.

Prof. C. V. Riley, for about 20 years chief of the Entomological Division, U. S. Dept. of Agriculture, has resigned, and Prof. L. O. Howard has been appointed as Prof. Riley's successor. We understand that Mr. Howard has been the mainstay of that branch of the service for several years, and is the author of a large portion of the publications which bear Prof. Riley's name.

The Chicago *Record*, from which we obtained the above information, says that "it has been Prof. Riley's practice for years to claim the authorship of everything that was written in his bureau." From this it will be fair to assume that Mr. Frank Benton had a pretty big hand in preparing the

essay read at the Washington convention of the North American Bee-Keepers' Association, on "What the Department of Agriculture Has Done and Can Do for Apiculture." If such be the case, we think Mr. Benton is deserving of considerable credit, for the preparation of that essay must have required considerable labor, involving not a little investigation of past records of the Department. We believe in giving "honor to whom honor is due," wherever it is at all possible to do so.

Somnambulist—the "sleep-walking" contributor to the *Progressive Bee-Keeper*—asks whether the "Advance" wouldn't be a more appropriate name for the *Review*. We hardly think it would. What's the matter with "Review?" The *Review*—"is—all—right!"

Producing Comb Honey.—The *American Bee-Keeper* enumerates the following essential requirements in producing comb honey that will bring a good price: Great care in the way it is put up; clean, white, well-made sections, completely filled, and the cells all capped.

Lost Numbers.—Very frequently we receive requests for a missing copy of the BEE JOURNAL several months after the date of the particular copy wanted. Often we have not a single copy left then, while if requested not longer than a month after its issue, we would be able to supply it. Please remember this, all ye who should fail at any time to receive your copy of the BEE JOURNAL. We are always careful to mail them all, promptly, but occasionally a few are lost in the post-office somewhere. Such we are very glad to replace, if notified in time.

Wintered "Unusually Well."—In *Gleanings* for May 15th we find these editorial paragraphs about how the bees have wintered, and also as to the prospects:

There seems to be no special need this spring of going to the expense and trouble of gathering statistics as to how the bees have wintered; for reports, with hardly an exception, show that they have come out unusually well. Not only is there no loss worth speaking of, but the colonies are unusually strong. Never before do we remember a more favorable spring for bees. In our own locality hives are filled with honey from fruit-blossoms and dandelions, and in our own apiary we have had to give more room and divide. Our neighbors have had swarming, and yet fruit-bloom seems to be only fairly out. By the flood of orders, we should judge that a similar state of things prevails throughout the North. It should be said that, in certain parts of the South, frosts have done some damage.

Prospects for a fine honey crop this season were never more flattering. If we are not *sure* of a good flow from clover and basswood, we are *sure*, from the heavy brood-rearing now going on, of a large force of bees that will be ready for business *if* the honey does come.

We don't remember the spring when so many favorable reports came in as to the almost universally successful wintering of bees. Nearly every letter has said that they have wintered well, and also that the prospects were very flattering for a good crop of honey—outside of California.

In this region the spring is now (May 21st) about two weeks ahead of its usual time, and although the past few days the weather has been cold and rainy, still it may not damage the prospects much, as the bees had just put in about two weeks of good, solid work on early blossoms. After settled warm weather comes again, probably in a week or two, we may find that, after all, the results may be as good as if bee-keepers had managed the weather themselves.

Bro. Hutchinson is making quite a reputation for himself in the line of original short, pithy sentences in recent numbers of the *Review*. Here is a good sample, which appeared in the last number of his paper:

"Silence is the wit of fools."

The Heddon Section-Case,—A subscriber to the BEE JOURNAL in South Africa, writes as follows about the Heddon section-case:

Mr. Heddon says, on page 93 of his "Success in Bee-Culture," that he gets 28 sections, 7 to the foot, in each of his surplus cases—that means 7 rows of 4 to the row (as his frames only hold 4). He also uses tin separators—this would make the frames and tin together good 1 foot and ⅛ inch. His cases (he tells us on page 90, bottom paragraph) are only 13 inches wide, *outside* measurement, and the sides of the surplus cases are made of ⅝ lumber; this leaves 11¾ inches inside measurement, and yet into this space, he tells us, he puts 7 frames measuring 1 foot, and separators measur-

ing good ⅛ of an inch. How is it done? Can Mr. W. Z. Hutchinson, perhaps, explain?

Mr. Hutchinson kindly replies to the foregoing as follows:

The Heddon super for holding wide frames is made a trifle more than 13 inches wide, outside measurement, and this gives room to make it 12¼ inches inside, which gives abundant room for the separators; also sufficient "play" so that the first frame may be easily removed.

W. Z. HUTCHINSON.

Foul Brood.—Here is what the *American Bee-Keeper* said in the May number about Dr. Howard's book on foul brood:

"It is written in a plain and concise manner, and shows a considerable amount of research and experimenting on the part of the author."

Remember, we mail it for only 25 cents, or club it with the BEE JOURNAL for a year—both for $1.15; or we will give it free as a premium for sending us one new subscriber.

A Stingless Straw was furnished *Gleanings* by Dr. Miller, as follows:

Dr. Karl Ritter, a Pole, caged 132 bees that had lost their stings. After 48 hours 80 were still living, and flew away as lively as ever when freed. But bees are slow to show the effect of injuries. Cut one in two, and it doesn't seem to hurt it for a long time.

The Utah Association of bee-keepers, at its last meeting elected the following officers for the ensuing year:

President—E. S. Lovesy; Vice-President-at-Large, H. Taufer; Secretary and Treasurer, J. C. Swaner.

With a view to enlarge the usefulness of the association, the following Vice-Presidents were elected:

Weber County—R. T. Rhees, of View.
Cache County—J. J. Bell, of Logan.
Davis County—Wm. Blood, of Kaysville.
Tooele County—Geo. Cramer, of Tooele.
Salt Lake County—Daniel Jensen, of Mill Creek, and Joshua Terry, of Draper.
Utah County—O. B. Huntington, of Springville, and H. L. Brooks, of Lake Shore.
Juab County—H. C. L. Jorgenson, of Levan.
Sanpete County—P. M. McArthur, of Mt. Pleasant.
Sevier County—J. D. Whipple, of Aurora.

Messrs. Lovesy, Swaner, and J. S. Scott were appointed a committee to draft suggestions to the county courts not to allow trees to be sprayed, while in bloom, with any poisonous substance, as it is sure death to the bees, and does the fruit no good; the proper time to spray being when the blossoms have fallen, or when the fruit has set.

It is desired wherever practicable to have the Vice-Presidents organize local associations, thereby creating more general interest in the bee-industry.

☞ "It is useless for me to say that I am well pleased with the BEE JOURNAL. You may depend upon my patronage all the time."—H. L. BOWLIN, of Mississippi.

Comb Honey Production.—In Prof. Cook's "Bee-Keepers' Guide," is the following about the production of comb honey:

Mr. R. L. Taylor, one of Michigan's most successful bee-keepers, who produces large harvests of comb honey, gives the following points, to be heeded in producing comb honey:

1. Bees must winter well.
2. There must be a goodly amount of honey in the hive in the spring. Bees never prosper on scant rations.
3. Keep colonies warm in spring.
4. Tier up, and leave sections on the hive until just at the close of the season.
5. When removed, pile the crates of sections one upon another, and keep in a warm room until sold.

The above are points well worthy consideration, and may be called the axioms of comb honey production.

Honey for Lung Trouble.—In an exchange we find the following about the use of honey in the treatment of lung affections, etc.:

Honey is an excellent remedy in lung trouble. Make a strong decoction of hoarhound herb and sweeten with honey. Take a table-spoonful five times a day.

Honey-candy is an excellent remedy for coughs, colds, whooping-cough, etc. Fill a bellmetal kettle with hoardhound leaves and soft water, letting it boil until the liquor becomes strong—strain through a muslin cloth, adding as much honey as desired—then cook it in the same kettle until the water evaporates, when the candy may be poured into shallow vessels and remain until needed, or pulled like molasses candy until white.

Have You Read the wonderful Premium offer on page 677?

ANSWERED BY

DR. C. C. MILLER,

MARENGO, ILL.

In this department will be answered those questions needing IMMEDIATE attention, and such as are not of sufficient special interest to require replies from the 20 or more apiarists who help to make "Queries and Replies" so interesting on another page. In the main, it will contain questions and answers upon matters that particularly interest beginners.—ED.

Newly Hatched Bees, Cerolein, Etc.

1. Is there any danger of newly-hatched bees dying for want of food, when the frames on which they are hatched contain no honey, and have no honey-combs immediately adjacent?

2. What is cerolein, and what is known of it as a remedy for foul brood?

3. Can you "locate" the cause of the increased yield when the queen is removed and put in a nucleus (the nucleus itself being made up out of the colony), the colony kept queenless for a few weeks, and the nucleus united to it at the end of that time? The *amount* of neither bees nor brood is essentially altered. I'm not exactly asking for information, but for something just as desirable, viz: a brief and clear statement, which I cannot make to satisfy myself.

4. Don't you think wide frames of sections below are better for farmers and small honey-producers than upper stories?

5. What number of square inches of *comb* does the expression "one Langstroth frame" mean? The *inside* dimensions vary according to the depth of top-bar used.

6. Is the plan of transferring the old queen to an upper story, putting an excluder between, dividing the brood between the upper and lower stories and allowing a young queen to be hatched below, and mated, to be recommended as a method of requeening without cessation of egg-laying? If practiced each year after swarming time, would the queens thus reared be as good as young queens from the South to prevent swarming the season after?

A question was asked in this department some time age, by Mr. Beckwith, as to how much honey it took to make one pound of bees. Cheshire makes a rough guess in these terms: "Let us imagine that the brooding, feeding, and sealing of a single bee, from the egg upwards, costs as much to the colony as storing four cells with honey—an estimate which careful attention to this problem has shown me to be moderate, even for ordinary yields. Then the production of one pound of bees, i. e., nearly two pounds of larvæ, will reduce the honey stored by 16 pounds; if the comb has to be built, by probably 8 pounds." F. T.

ANSWERS.—1. I should be inclined to say there could be no danger so long as honey was to be found in any part of the hive, for the instinct of the bee is to keep some unsealed honey in the brood-nest so long as there is honey in the hive. And yet I remember reading of a case in which the young bees died while plenty of honey was in outside combs. If I remember rightly, there was a continued cold spell, so that all the honey in the brood-nest was used up, and it was too cold for the bees to move out of the brood-nest for more.

2. Cerolein is a substance obtained from beeswax by treatment with boiling alcohol, but I don't remember to have heard of it as a foul-brood remedy.

3. I doubt if I can do any better at it than you. In the first place, is it a settled thing that there is an increased yield? I know it is claimed, and by good men, too, but somehow I couldn't entirely satisfy myself about it, and I tried it on a large scale. If you are satisfied as to the matter of fact, and want a theory, I would formulate something like this: In three days after the removal of the queen all the eggs will be hatched, and after that three days there will be fewer larvæ to feed than if the queen had continued in the hive. In about five days more there will be no feeding at all to be done, and so less stores used up. Moreover, there being less housework to do, it is possible that some of the bees will become field gatherers a little earlier than if there were plenty of "babies" to feed.

I have serious doubts, however, as to any gain, in the long run, by removing the queen.

4. No, farmers' bees are not without their ambitions, and have just the same reasons for storing above as the bees of the specialist.

5. Yes, the amount of comb surface varies according to the thickness, not only of the top-bars, but also of the end and bottom bars. One of the latest Dovetail-hive frames is before me, and the inside measurement is 136 square inches; but no one knows what the comb surface will be exactly, till he knows what amount of

room will be taken up with peep-holes or vacancies along the edges of the comb.

6. You can't always depend upon bees rearing a queen in the lower story, especially if the attempt be made after the swarming season.

As a rule, I think queeens reared in the swarming season or in a heavy honey-flow, will average better than others. As to prevention of swarming, I don't know whether there would be any difference between one reared in the fall and the spring, but I should think that one reared in the spring would be better, for it has laid less. One reared late in the fall would of course lay so little in the fall that it might not be worth counting, but it might be reared so late that the queen would not be worth counting.

Thanks for helping us out as to the cost of rearing a pound of bees.

When Bees Gather Nectar, Etc.

1. How do you tell when bees are gatheran abundance of nectar? My bees just roll in and out till about 10 o'clock, and then they slack up. In the afternoon about 2 o'clock they begin to work faster, or the amount of bees going in and out is greater till late in the afternoon.

2. Which swarm the more, Italians or hybrid bees?

3. Is this often or ever the case? I have a black queen that was mated to an Italian drone, and all her bees but about one-fifth are as bright Italians as you see, that is, 3-banded; they show the 3 bands when not full of honey. The one-fifth are all black. The "A B C of Bee-Culture" says, "all the way from 3-banded to the blackest of bees;" but this is not "all the way," for it is 3 bands and black.

4. I have a colony of bees and there are all the time young bees coming out on the alighting-board and dying. They appear to have no use of themselves—just can crawl and pant as if they were tired, till they die. What is the cause of this?

Bankston, Ala. M. W. G.

ANSWERS.—1. You've partly answered your question in the asking. When bees "just roll in and out," you may be pretty certain they're not fooling, but are doing a profitable business. When they slack up at about 10 o'clock, it's because business is getting dull. It is not an uncommon thing for flowers to yield better in one part of the day than another. Buckwheat, for instance, yields little or nothing in the afternoon. Catch a bee returning from the field and you can see whether its honey-sac is full by tearing it apart, or by gently pressing it till it ejects the honey from the mouth.

2, I don't know that there's any difference.

3. Yes, the first cross is very likely to have some that appear pure blacks and some that appear pure Italians.

4. Probably bee-paralysis. With me the disease doesn't amount to much, but in the South it is in some cases very destructive. Unfortunately, there seems to be no sure remedy, although some think changing the queen effects a cure.

Moving Bees a Short Distance.

I wish to move a few colonies of bees from my neighbor's apiary, which is about a good stone's throw away from my bees. Can this be done now, or in the swarming season? If so, how? H. O. J.

Reeseville, Wis.

ANSWER.—If a swarm is taken to your place the day it issues, there will be no trouble. A colony may be taken at any time, and you can put up a board in front of the entrance; but some of the bees will go back.

Foul-Broody Honey—Basswood.

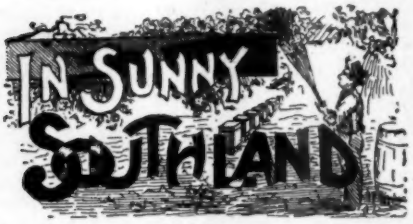
1. Is honey from foul-broody colonies unhealthy to eat? Or is it for the benefit of bee-keepers that foul brood inspectors are employed?

2. In what month does basswood bloom?

F. T. S.

ANSWERS.—I'm not sure about it, but I should not suppose any serious results would come from eating it, and at the same time I do not believe it as wholesome as honey from healthy colonies. The thought of its coming from such a foul-smelling place would settle the matter for most people's eating. Certainly, foul brood inspectors are for the sole benefit of bee-keepers. It makes little difference to your neighbor who is a shoemaker whether foul brood is within half a mile of you, but it does make a big difference to you, and you are anxious for the inspector to find it and stamp it out.

2. June and July.



CONDUCTED BY
MRS. JENNIE ATCHLEY.
BEEVILLE, TEXAS.

Hauling Bees in Warm Weather.

We are learning more and more how to haul and transport bees during warm weather. We have found out that it is a piece of foolishness to fasten bees up in their hives while being hauled, and then we have *no* loss. The bees do not desert the combs and let their brood suffer, as when confined in close quarters, they will leave the brood-nest if they can, and the brood suffers more or less, and if they are confined to their combs, the old bees as well as brood suffers, and not infrequently smothers outright.

It would astonish you as much as we were astonished to find so few bees stirring when left open in a bee-tight wagon. When they do not suffer from heat they remain quiet on their combs after the wagon starts.

Willie came in from a 60-mile trip last week with a wagon-load of bees and no hives. The wagon is bee-tight, made so with wire-cloth. Two boxes are in the center of the wagon containing some honey, and naked swarms he picked up as he traveled, and turned loose into the bee-wagon. When he arrived home, we took the bees and measured about a gallon to a hive, and before we got through we found *all* the queens, and gave each gallon of bees a queen. But we had about five gallons left over, and these we formed into nuclei. Now, why were the queens not killed? Because the bees could not fly, and were not caring.

I would rather haul bees just turned loose in a good, tight wagon—three or four bushels of them—queens and all, than to try to confine them in their hives. It is not a success to confine powerful colonies heavy with brood in hot weather, but such can be transported as well in hot as in cold weather, if they are not confined.

Now, if you will take my advice, and when you *have* bees to move in hot weather, give them freedom with the hive-covers off, you will not regret it, if you have a good, tight bee-wagon.

JENNIE ATCHLEY.

The Texas State Convention.

(Continued from page 621.)

Dr. Howard was invited to deliver a lecture on foul brood. He stated that this was unexpected, but he would endeavor to interest the convention with a few remarks on the results of his investigation:

Dr. Howard on Foul Brood.

Since our last meeting here, during the summer of 1893, Mrs. Jennie Atchley requested me to investigate this subject, and see if any new light might be discovered on this disease. Not appreciating the magnitude of the undertaking, I agreed to do so, if the necessary material could be furnished. After searching our State for a case of foul brood, and failing to find one, a request was published in the AMERICAN BEE JOURNAL to furnish me with specimens of foul brood for investigation. Specimens were received from several sources outside of Texas, and the work was begun. Meantime an effort was made to obtain all the literature on the subject.

Cheshire and Watson-Cheyne, of London, England, described the disease, and were first to give it the technical name of *bacillus alvei;* prior to this, however, Shonfeld, of Germany, had investigated the disease, and found it to be of microbic origin; later, McLain, United States Apicultural Agent, at Aurora, Ills., made a report to the Government Entomologist, Dr. Chas. V. Riley; and Mackenzie, of Canada, in January, 1893, published a report of his investigations in the *Canadian Bee Journal.*

As my investigations progressed, the works of these gentlemen were received, and a correspondence was opened with Wm. McEvoy, Foul Brood Inspector of the Province of Ontario, Canada. I will state here that his published articles in the AMERICAN BEE JOURNAL on the cause and cure of foul brood incited these investigations. Many important questions were propounded to Mr. McEvoy, and foul brood specimens were obtained from him; his treatment was very unpopular, and his grounds seemed untenable in the light of what had been written and generally received with grace.

By this time I found that I had undertaken more than I had anticipated. The work was begun systematically, and prosecuted with great care, from a bacteriological standpoint. I put all the writers on the subject on trial, hoping that out of confusion and chaos, to bring some new light that might aid us in stamping out this dreadful and destructive plague.

Foul brood is strictly an infectious disease; the germs producing it must come in actual contact with the brood in order to establish it. A history of the germ, or *bacillus* of foul brood will be of interest, and enable us to better understand the nature of the disease. Like all disease-producing germs, *bacillus alvei* in active growth evolves poisons, chemical in nature, which are destructive to life; these poisonous compounds are called *ptomaines*. When these germs are introduced from without to healthy brood, the food provided by the nurse-bees being a nutrient medium, active growth at once takes place; poisonous compounds result, and the death of the brood may result from these, the germs themselves, or their combined action. In all cases of foul brood these *bacilli* are found.

I have formulated a proposition, which states in substance that the decomposition of chilled or dead brood does not produce foul brood, or that putrefactive non-disease producing germs cannot produce those of a disease-producing character, which I have not the time to elaborate fully now, but will give it passing mention.

For a disease-producing germ to produce one of the opposite character, there would be a time in its life that it would possess all of these characteristics at once; this is too absurd to believe, it is like being nothing and something at the same time; just imagine the magnitude of a turning-point, where nothing ceased to be nothing to become something. If it were true that the germs of foul brood floated in the air, as stated by some, there would be no cure from any method, as there is no barrier against them, and no brood could be reared at all.

There is one more interesting point worthy of mention. Many putrefactive air-germs produce these deadly compounds just mentioned, but dead brood alone is attacked by these putrefactive germs and not live brood. If we have dead and decayed brood from any cause, it will, through these agencies, create a stench in the hive, the rotten mass will settle to the lower side of the cell, and dry with all its poisonous chemical compounds and be no more likely to be removed by the bees than if it were malignant foul brood; if eggs are deposited in these cells, the liquid food provided the nurse-bees dissolves this poison, it becomes a part of the food of the larvæ, forming poisonous compounds, resulting in death to the brood; but this is not malignant foul brood—it is only death from poisoning; even if the honey contained a portion of this poison, disease could not result from or carry this from one hive to another, as it would be so much diluted that it would not spread the disease, as does the contaminated honey bearing the *bacilli* of foul brood which attacks and destroys live brood. Here the remedy is simple—remove the dead brood, and your cure is perfect.

In malignant foul brood honey is stored, and sometimes sealed in the cells containing the dried remains which contain the germs, preserving them indefinitely. How, then, can medicated syrup be of any value in such cases? Thus we come to the conclusion that any method which has not for its object the removal of the germs and their poisonous compounds entirely from within the reach of the brood, is useless. Mr. McEvoy has this object in view, and effectually does the work.

I have not the time to notice the fallacies of other writers who advocate medicated syrups in the treatment of this disease. A work is now in press which gives in detail all of the experiments made in this line; and a review of the work of the prominent writers on this disease. WM. R. HOWARD.

The convention then adjourned to meet at 8 p.m., in the office of factory.

FIRST DAY—NIGHT MEETING.

The convention met, and the first subject discussed was the value of untested queens, queens by mail, etc. One had purchased ten untested queens from a breeder in Dallas county, and all had proved worthless except one, and he congratulated himself that he had one ten-dollar queen.

Another had purchased eight queens from a breeder—he had one good one. Several others had had similar experiences. Some of the queens were not prolific, some were drone-layers. Others had had as good untested queens as they ever saw, and thought that the method of rearing had a great deal to do with the vitality and usefulness of queens. They were frequently injured in transit

in the mails, and the breeders should not be held responsible for this.

THREE-BANDED AND FIVE-BANDED BEES.

Dr. Howard was asked to explain the difference between 3-banded and 5-banded workers.

He stated that a 3-banded bee is one in which the first three segments of the abdomen behind the thorax or body were bright yellow, the remaining segments were dark; that the hairs on all the segments were white, shading to a brown toward the ends. A 5-banded bee is one in which the first three segments were of a brighter yellow than the 3-banded, and that all the hairs appeared longer and white to the ends, and that the hairs on the fourth and fifth segments were longer than on the remaining segments; 5-banded bees were very much the same in appearance as the Albinos, except that in the Albinos all the hairs were long and very bright.

He was asked if there were any yellow bands on the fourth and fifth segments like those on the first three segments. He answered that the anterior and posterior borders of the first three segments in Italians were dark, and all the other segments were dark; that the long white hairs on the fourth and fifth segments gave the appearance of bands. He considered them merely a strain—rather a distinction without a difference; he had never seen a bee with five golden bands.

The general opinion prevailed that all pure Italian bees were only 3-banded, some were brighter than others.

A NEW BEE-DISEASE.

Leonard Cowell described a new disease from which his bees had suffered. The abdomen swelled until it was very large, the alimentary canal seemed locked, and on pressure the feces would burst through the adominal wall before it would pass the natural way. The bees would crawl out of the hive and die by the hundreds; by opening the vent with a pin, they would be relieved and fly away. He was sure that the trouble was in the alimentary tract, from the experiments on a few bees.

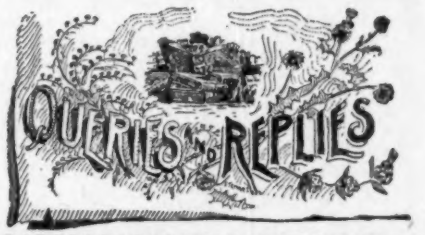
Several others had the same disease among their bees, and by sprinkling fine salt down among the bees, it seemed to stop it.

The question was asked if there was any dampness in the hives in which the disease occurred. There was not, and it occurred in weak as well as strong colonies. Paralysis or "nameless bee-disease" was suggested, but those who had seen both, declared that there was no resemblance to paralysis. All declared it something new, and worthy of investigation.

Dr. Howard suggested that this disease might, perhaps, be the cause of the worthlessness of the queens referred to awhile ago; he thought that every one should investigate the surroundings, try to determine the age of the bees suffering, whether the old bees, or those bred this spring, and notice if cold or long confinement influenced the disease. He would give it some attention if it visited his bees.

The meeting then adjourned until 8 a.m. on Wednesday.

(To be continued.)



The Best Foundation for Sections.

Query 925.—Which is the most profitable foundation to use for sections—suppose I take thin brood foundation which averages 8 square feet to the pound, and put it in the brood-chamber, between the end of the hive and the division-board, and having it there for three days to be drawn out some, then taking it out and put it in the sections? or use thin surplus foundation for sections without having it drawn out at all?—Illinois.

Extra thin foundation.—J. M. HAMBAUGH.

Use the thinnest foundation every time.—P. H. ELWOOD.

I'd rather have the thin foundation in the sections.—C. C. MILLER.

I would use the thin foundation without being drawn out.—M. MAHIN.

Place the thin foundation in the sections at the start.—J. P. H. BROWN.

We would take the thin surplus foundation every time.—DADANT & SON.

Use the thin foundation. It is too late in this age of progression to begin again, with fussy methods of the past.—G. W. DEMAREE.

Don't fool with such plans, but use thin foundation in sections.—J. H. LARRABEE.

I would use the thin surplus foundation in the sections to begin with, and save the bother.—E. FRANCE.

If your time is worth anything, use thin foundation, without being drawn out.—MRS. L. HARRISON.

Use the thin surplus foundation, and place it at first where it is to be completed.—MRS. J. N. HEATER.

Use thin surplus foundation—the thinner the better, if you want nice comb honey.—H. D. CUTTING.

"I don't know." Your plan is worth trying. But, well—I dunno! See *Review* for March.—W. M. BARNUM.

I would use the thin surplus foundation, and have it drawn out at the side of the brood-frames.—A. B. MASON.

In the first case you would not be sure that it would be thinned. I prefer very thin foundation for the sections.—A. J. COOK.

Use thin foundation without having it drawn out. The other way you have your work for nothing, for we take it that one bee's time is worth as much as another's.—JAS. A. STONE.

Use thin foundation, every time. It does not pay to putter with foundation to have it drawn out in any place except the cases where it is to be finished into perfect section honey.—C. H. DIBBERN.

No one should think of using foundation as heavy as 8 feet to the pound for comb honey; 11 to 12 feet to the pound is as heavy as can be used without danger of a "fish-bone" in the comb honey.—G. M. DOOLITTLE.

I would prefer to take the chances with a good article of thin foundation. You might gain something by getting it partially drawn in the brood-chamber, if you have but few colonies, and plenty of time. With a large number of colonies you would likely find it tedious.—S. I. FREEBORN.

I think it profitable foundation of about 9 feet to the pound, but whatever weight I used I would have it drawn out in the sections only. What possible advantage can foundation drawn out in the brood-chamber behind a division-board have over that drawn out in the sections?—R. L. TAYLOR.

If you mean profitable in dollars and cents, then my answer would be, the foundation that costs the least and will bring the most money when worked into combs. If you want a real, first-class quality of comb honey, the thinner the foundation the better. I should not use any brood-foundation in the sections if I expected to get a first-class price for my honey, and hold my customers. Neither should I use any combs that had been drawn out before the bees were ready to fill them with honey.—EMERSON T. ABBOTT.

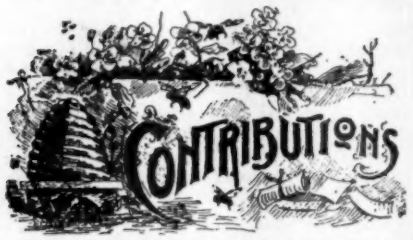
I use the thin surplus. Your project is too much time used for so small an item. Use the thin foundation at first. You would not likely get it drawn out in three days behind the division-board, every time. Bees are bees, and sometimes they will, and sometimes they won't.—MRS. JENNIE ATCHLEY.

The thinnest that you can get. I never found foundation drawn out much. But if bees do draw it out, isn't the wax all there? And will you not find it when you eat the honey? I do. Comb is one thing. Beeswax is another. I never saw a person who liked beeswax on their bread.—EUGENE SECOR.

If you have plenty of time that is not of very much value, the former plan is the more profitable. If I wanted to get as large a crop as possible, regardless of labor, I would use foundation drawn out in the brood-chamber. Time could be spent in this way more profitably than in many of the ways most bee-keepers use it.—J. A. GREEN.

In my opinion the thin foundation only should be used in sections. Brood-foundation, even as light as 8 feet to the pound, Langstroth frame size, would show a thick midrib in the comb honey, and that is just what we wish to avoid. I use the thinnest foundation I can obtain—all I require being that it shall hold together; 12 to 14 feet to the pound, Langstroth frame size, I find works well.—J. E. POND.

There is no advantage in having foundation drawn out in the brood-chamber and then cutting it out and putting into sections. The bees will draw out foundation in the section supers quick enough if they can be made to enter them in force when honey is coming in. The only secret in this matter is to use a small, shallow brood-chamber with queen-excluder, and then the placing of section foundation in the brood-chamber to get it partly drawn out, either in sections or brood-frames, is quite unnecessary. The extra-thin foundation is the only kind that should be used in the sections. Thin brood-foundation is only fit for brood.—G. L. TINKER.



Queens Injured in Shipping.

Written for the American Bee Journal

BY G. M. DOOLITTLE.

I see by the bee-papers that Mrs. Jennie Atchley has been using some pretty strong terms, and giving some very elusive evidence (according to her *own* mind), that queens are not injured when taken from the hives in which they are having full sway as mothers, and consigned to the gentle(?) treatment of the mail-bags. I also note this language from another queen-breeder:

"No, the confinement of a queen during shipment rarely if ever affects her fertility. We can speak positively when we say that shipment either by mail or express does not deteriorate the laying qualities of a queen."

Now, I suppose, as a breeder of queens, if I would consult my own interests, I should let this pass unchallenged; but I feel that my duty and truth require me to protest from such a decision, when the facts along the line of injury to queens in shipment are so plainly to be seen, as I and others have often seen them.

Probably no man in the United States has any more flattering testimonials, according to the number of queens shipped than I have; yet this does not prove that some of the queens I have sent out have never been injured by shipment. By shipment, I include all the necessary evils attending the removal of a queen from her hive and home, and sending her to another hive and home where she is obliged to suddenly stop a profuse egg-laying, and continue in this condition for from three days to three weeks.

If I am not mistaken, it was James Heddon who first called attention to this injury, attributing it at the time to the rough usage the queen received in the mails, saying that under no circumstances, and for no consideration, would he have a valuable queen sent in any way but by express. When I read this, which was many years ago, I said, this accounts for the unsatisfactory results I have often obtained from queens which I have purchased that were sent by mail; so for some time after that I ordered all of the choice queens which I purchased, sent by express. However, as I saw little difference in favor of those which came by express over those which came by mail, I concluded that I must look elsewhere for the trouble.

In looking over the past to see where the difficulty lay, I saw that such a queen, sent me by a noted breeder as a premium for getting the most subscribers to a certain bee-paper, had not laid eggs enough during a year to amount to as much as one of my ordinary queens would lay in six weeks, so I wrote him asking if he remembered whether the queen was prolific with him or not. His reply was that she was unusually so, and at the time he took her out of the hive, she was keeping ten Langstroth frames full of brood.

Later on I received another queen from another noted breeder, for which I paid $12, thinking to get the best there was in the country. but while she lived she was about the poorest layer I ever had, yet I was assured that she came near perfection as to prolificness before she was sent me.

Soon after this I commenced to send out queens myself, and during my experience as a breeder and shipper of queens, some five or six instances have come under my notice, of queens which proved of no special value as to prolificness after they were received by the purchasing party, while I *know* they were among the best, if not the best, queens as to prolificness I ever had in my yard.

While studying on these things, and looking for a cause, my eye chanced to rest on a few sentences regarding the shipping of queens, by either Mr. Hutchinson or Mr. Hayhurst, if I mistake not, in which it was said that the removing of a queen from a full colony during the height of her egg-laying, and immediately sending her off, caused her to be unprolific ever afterward, and that to remedy this, they caged such a day or so before they sent them off, which allowed them to rid themselves of their eggs (something as a queen does before issuing with a natural swarm) before they were subject to the rough usage they must be subjected to in the mails. I may not have quoted this just right. but have given the impression it left on my mind at that time.

Soon after this I saw where another

of our brethren recommended the taking of queens out of full colonies, which were to be sent off, and leaving them in a nucleus a week before they were shipped, for in this way they became like a queen that had just got to laying in a nucleus, and such queens were scarcely ever injured by shipment.

Putting the whole together, I believed that the trouble lay in the sudden and unnatural stopping of a queen from laying the thousands of eggs in the process of formation at the time she was taken from the hive; so I went about experimenting to see if I were right.

I caught two of my most prolific queens and caged them the same as I would for shipment, giving them the usual number of bees for an escort, placing them in my shop, where I would occasionally handle them and give them about the usage I thought they must receive when going by mail or express. Others were caught and handled as carefully as possible, all being kept from the hive from four days to two weeks, some even having the workers renewed on account of the first set dying from confinement; and upon returning them as heads of colonies again, at least one-third of them proved of little value after that, none of them fully coming up to their former prolificness afterward while they lived.

Having solved the matter to my satisfaction—that queens were injured by suddenly stopping them from prolific egg-laying, and *not* by the usage they received in the mails—I next went about finding out if this prolificness had any effect on the daughters from these once prolific queens, but now almost valueless mothers, and I am pleased to be able to go on record as saying that, so far as I can see, such injured queens give just as prolific daughters after their confinement as they did before. Since then my advice has always been, where I have had occasion to say anything about the matter, that the receiver of a queen which he has bought for breeding purposes, should go about rearing queens from her at once or immediately, as soon as any of her brood is old enough to use for that purpose. In this way the buyer can get a good return for his money, even if this individual queen should not turn out all that he would have her be, as has been the case with many I have purchased.

I hope Mrs. Atchley, or others, will not take this unkindly, for, as I said at the outset, I felt that duty and truth demanded that I write what I believed from past experience to be the real facts in the case. Based upon Mrs. Atchley's assertions, already uncharitable letters are coming in, denouncing some of our queen-breeders as knowingly sending out poor queens, while I cannot believe that such is the case, as all queen-breeders have a reputation at stake which would not allow them to do such things, even did they not otherwise scruple to do this.

Borodino, N. Y.

Salt-Washed Old Hives for Swarms.

Written for the American Bee Journal

BY G. P. HACHENBERG, M. D.

For the last few years, except the present one, I had very bad luck in retaining my swarms of bees after I had them hived. Sometimes they would not enter the hive at all, or would leave in about an hour—at least they would be gone the next day. When too late, last year, I suspected the cause of it. For the last several years old hives accumulated on my hands, where the bees had been destroyed by moth. I used some of these hives, in hiving the bees, after giving them a thorough cleansing. It is evident that there was a peculiar effluvia, shreds of webs, or something about them, that was offensive to the bees, and caused them to leave.

This year I concluded again to use the same worm-eaten hives, and see if by some means I could not make them acceptable to the bees. Both hives and frames I had again cleansed as before. I waxed over that part of the frames for the attachment of the combs (but that was done before), for I do not use foundation; the hives I had well scrubbed over on the inside with a saturated solution of table-salt. The bottom-board I had likewise cleaned and rubbed over with salt water.

In the above manner I prepared a number of hives, and had them placed in the apiary for immediate use as the swarming took place. I did nothing else to allure them to accept the hives. It was simply glorious to see the bees rush into these hives, and they went in to stay. Of course I won, and was fully satisfied with the experiment. It may not be necessary to state that all animal and insect life are fond of salt—bees not excepted.

Last year I made special efforts to retain my swarms, then not knowing what was wrong, by the introduction of

brood-frames, but with one single exception I failed—they would not accept the old, worm-eaten hives and frames. I suppose I lost over 20 swarms before I was able to stop the waste.

Austin, Tex.

Some Experiments in Wintering Bees.

Written for the "Bee-Keepers' Review"

BY HON. R. L. TAYLOR.

During last fall and winter I made such efforts as I could under existing circumstances to get some light on the problems growing out of the matter of wintering bees.

My bee-cellar is under my honey-house, and is 15 by 30 feet, with a cistern in one end. I have wintered bees in this cellar for seven or eight years with almost uniformly excellent success, and yet it now seems certain, from my experiments with a hygrometer, to be a very damp one, there being a difference, at a temperature of from 45 to 50° between the wet bulb and the dry bulb, of only one-half a degree, which indicates that the percentage of moisture is about 96—almost complete saturation.

It is claimed by many prominent bee-keepers that moisture is one of the principal causes, if not the principal cause, of the winter disease of bees known as diarrhea, but if this were true, I should have expected to find it prevailing largely among my bees during the last winter, but such did not prove to be the case. In fact, though I suffered a larger percentage of loss than I ever did before in this cellar—about 20 per cent.—yet only a small propotion of those that perished showed even a little evidence of that disorder. I discovered only two cases that could be called really bad, in one of which the colony died, and in the other the colony had regained its health, and was in good order and of good strength when removed from the cellar, and still remains so.

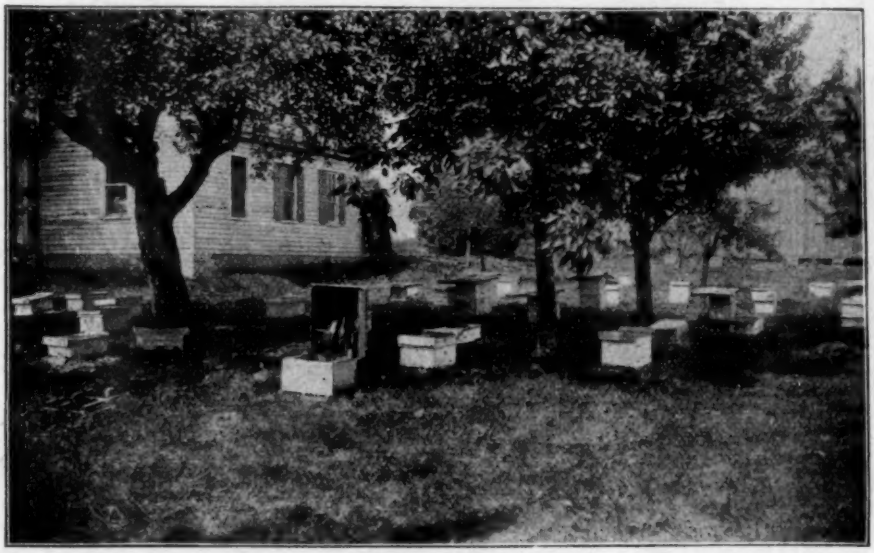
This case was a peculiar one. The hive was an eight-frame Langstroth hive, and the bottom-board was left on in the wintering. Such a forbidding receptacle for bees as this was when taken from the cellar about the 10th of April, I have seldom seen. The bottom-board was covered with a mass of sticky ordure to such an extent that only now and then would a bee venture upon it to gain the outside of the hive. The cover was well sealed on, and when pried off it ran with the almost incredible amount of water, and the honey-board and

Apiary of Mr. W. Z. Hutchinson, Flint, Mich.—Spring View.

combs outside the cluster were wet and white with mold. When the bottom-board was removed and a clean one substituted, the bees came out to fly as clean, healthy and strong as one would care to see.

I cannot reconcile this case, as well as many others I have examined recently, with the theory that moisture is the cause of diarrhea. Yet I think I have good evidence that moisture under certain circumstances is harmful. When the strength of the colony is sufficient to enable it to keep its immediate neighborhood dry, it appears not to suffer from moisture, but if it is so deficient in numbers and vigor, one or both, that it is unable to do that, it seems reasonable to suppose that it must perish, being either chilled to death in the cluster, or else driven to desperation by the misery of the situation, scattering and leaving the hive tenantless. The slight spotting of the combs which often occurs under such circumstances, should not, I think, be taken as a sign of the trouble known as diarrhea. It is rather the result of the weakness of approaching dissolution, than the cause of it.

Last season, after the failure of clover and basswood, there was very little nectar to be gathered in this locality, either during the remainder of the summer or during the fall, from which fact it resulted that at the beginning of winter a large portion of the colonies were not only weak in bees, but especially so in young bees. It was not difficult to foresee the probable consequence of this state of things, so I was not surprised at the loss I have incurred. Apparently, the old bees died off during the early part of the winter, for more than the usual number left the hives during that time, thus reducing the cluster to a size too small to enable it to successfully combat the unfriendly influences of moisture combined with a cellar temperature. Perhaps in many cases the cellar temperature alone would prove sufficient to create such a feeling of discomfort as to make the bees restless, and so cause them one by one to leave the cluster and wander out of the hive and be lost; but I have no doubt that in other cases the added influence of moisture was necessary to accomplish total ruin.



Apiary of Mr. W. Z. Hutchinson, Flint, Mich.—Summer View.

That the decline of these colonies came about in the way I have indicated, seems substantiated by the fact that in almost all these cases very few dead bees were left in the hives, and in only now and then one had the bees, last to perish, preserved the form of a cluster to the last.

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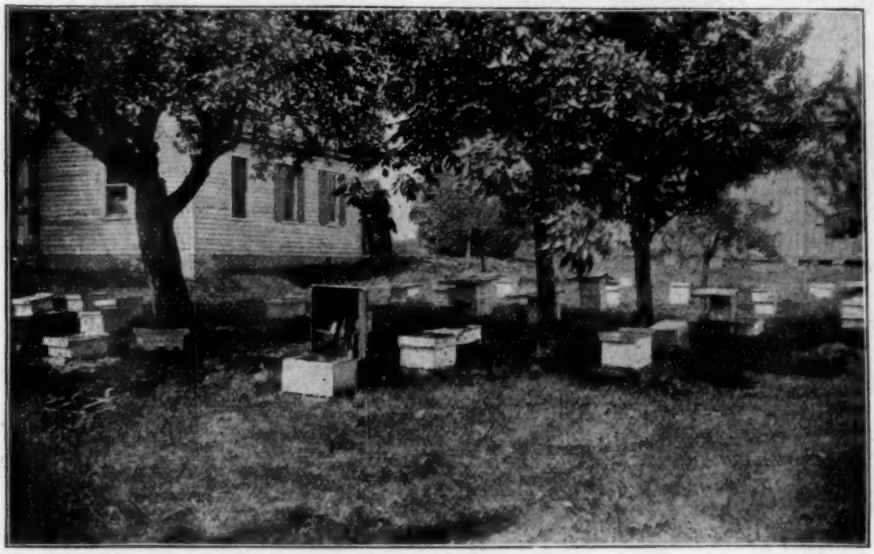

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Quite a strong effort was made to determine if possible whether sealed covers

were, in cellar wintering, a disadvantage, and a large number of hives with such covers, as well as of those with loose covers, were set apart and carefully examined, with the result that where the colonies were of fairly normal strength, there was no apparent difference—almost every one of that class wintering very satisfactorily. About the only advantage of the loose covers was that the combs were preserved dry and clean. It was also observed that the entire removal of the bottom-board, leaving the bottom of the hive entirely open, served largely the same purpose as a loose cover, though not to quite the same extent.

In some of the larger hives, having a bottom-board as well as sealed covers, the combs outside the cluster were very wet and moldy. In the case of the weaker colonies sealed covers were comparatively derimental.

Of course, all this is in a cellar where the temperature was maintained during the entire winter at 45° and over, and it can readily be believed that the class of colonies that would fail to cope with the conditions induced by sealed covers out-of-doors would be very considerably enlarged; not, I think, because the moisture would induce the disease known as diarrhea, but because it would require stronger colonies to ward off the encroaching chilliness caused by constant excessive evaporation, so that the health and vigor of a large number would be undermined and finally destroyed.

Of course, so far it does not appear that sealed covers have any advantage in any case, but inasmuch as they cause wet and moldy combs, it would be well worth the while to loosen all covers when the bees are put into the cellar, and certainly so unless the bottom-boards are entirely removed.

The losses I have incurred speak plainly of the importance of giving strict heed to the old rule: "Keep all colonies strong." By doubling up about one-third of my colonies in September, I should have escaped with practically no loss.

Lapeer, Mich., April 23.

Southern Queens—Mailing Queen-Bees.

Written for the American Bee Journal

BY H. F. COLEMAN.

Since the question as to whether queens reared in the South are as desirable as queens reared in the North, is being discussed, I will give my experience on that line. I have had queens reared in Texas, Tennessee, Pennsylvania, Ohio and Illinois, and have been unable to detect but little difference. Those reared in Texas were somewhat smaller than those of any other State, but being of the five-banded variety, I concluded that their size was due to the variety and not to the climate in which they were reared.

The Pennsylvania queens were of the dark or leather-colored Italians, and they have proved all I could expect. They are prolific, their bees gentle and splendid honey-gatherers.

Those reared in Illinois were of the golden Italian variety, and they have proved very fine as regards the qualities of their workers, their prolificness, etc.

Those reared in Ohio proved to be ill and so cross that I got rid of them without giving them a fair test. I tried four reared in Ohio—all evidently sisters—six reared in Texas, four reared in Illinois, and 29 reared in Pennsylvania.

It is due to say of the Texas bees that the queens were reasonably prolific, and that the workers are good honey-gatherers, but in my opinion the five-banded variety is not so good as either of the other varieties mentioned above, or at least they have not given me the same satisfaction.

QUEENS INJURED IN MAILING.

As to its injuring queens to ship them through the mails, I think it is a mistake. Perhaps once in a great while one will be injured in the mails, but it so seldom occurs that it amounts to scarcely anything, and should not be considered as anything but a rare exception to a general rule.

The introduction of a queen invariably weakens the colony to which she is introduced, unless it is kept up by brood or bees from some other colony, and we are too ready to think that because the colony falls behind others not tinkered with, the queen is deficient. This I think is the cause of so much being said about queens being injured in the mails.

At the risk of making this too long, I

will state that queens in the South are naturally shorter-lived than queens in the North. This is not due to climatic influences while rearing, but the honey seasons are longer in the South, and the queens are kept longer on duty—longer each year—which, of course, shortens their lives.

Sneedville, Tenn.

Fruit and Bees in Utah.

Written for the American Bee Journal

BY E. S. LOVESY.

We have been working hard here this spring to make a success of, and to try to harmonize, the fruit and bee industries. The results of our labor have been very gratifying.

I send a copy of our Fruit Bill, passed by the late legislature. While it is by no means as efficient as we could have desired, we believe it will be a great benefit to Utah, but we have had anything but smooth sailing. We have had much error to combat, and sometimes we have had all we could do to stem the tide. As there is no provision in this Act in regard to spraying, some have wanted to do it while the trees are in bloom, some stating that then was the right time to spray. One person said he believed the bees were the cause of the codling-moth. Another person stated that he knew they were, for he had watched the bees through a microscope lay their eggs under the bark, and that they hatched out codling-moth and other insects.

Well, really if this is not ignorance to perfection, what is? Please do not tell this to any one. I think if anything ever did produce other than its kind, the progeny of some people come very near to being a goose. The cause of much of this erroneous belief here is on account of the codling-moth being imported here in fruit about the time that the bees were first introduced here.

We expect to issue a circular, and try to reconcile, or harmonize, the bee and fruit industries if possible. Can any of our bee-keeping friends give us some pointers?

As some people assert that the moth lay their eggs in the blossom while the trees are in full bloom, I have sent Prof. Cook the following questions:

Can, and do, the codling-moth lay their eggs in the blossom?

Is it reasonable to suppose that a mixture can be had that will destroy the moth and eggs, and not injure the bees? A party here asserts this can be done.

Who else is there that can give us some light on this subject? You can readily see some of the errors we have to combat. When will fruit-men see the inconsistency of trying to injure themselves by their enmity toward the little busy bee? Our bee-industry here in Utah is worth over $100,000 per annum, and we propose to defend it.

Salt Lake City, Utah.

[The following is a copy of the "Horticultural Law" passed by the Utah legislature, and to which Mr. Lovesy refers in the foregoing article. It may be of some help in other localities where a similar law is desired in the future.—EDITOR.]

UTAH HORTICULTURAL LAW.

An Act authorizing the county courts to appoint fruit tree inspectors, and to provide for the destruction of fruit destroying insects.

Be it enacted by the Governor and Legislative Assembly of the Territory of Utah:

SECTION 1. It shall be the duty of the county court of any county in the territory of Utah, where fruit is grown, to appoint one or more fruit tree inspectors for such county.

SEC. 2. The duties of the fruit-tree inspector of each county shall be to inspect every orchard, vineyard or nursery in such county at such time and under such regulations as the county court shall prescribe. He shall annually report to the county court every item of interest, and the result of his labors pertaining to the duties of his office.

SEC. 3. It shall be the duty of the probate judge of any county wherein fruit trees are growing, to annually issue his proclamation, stating the time or times when it is prudent and proper to spray fruit trees, and to otherwise disinfect orchards that are infested with any kind of fruit destroying insects, in which he shall name two or more formulas that have been used and approved for such purposes.

SEC. 4. The inspector shall leave a printed notice with or mail to every owner, occupant or person in charge of any orchard, vineyard or nursery, produce dealer, storage or commission merchant, or any person handling fruit, on whose premises he shall find any kind of fruit-destroying insects, their larvæ or their pupæ, commanding them to disinfect their trees, vines, store-rooms and premises in conformity with the proclamation of the probate judge. Such notice must be signed by the inspector, who shall note in the stub of said notice the name of the person so notified, and the date on which such notice was served or duly mailed to him.

SEC. 5. The county court is hereby au-

thorized and required to provide for the publication of the proclamation required by Section 3, and to formulate such rules and regulations as it may deem proper, to govern the actions of the fruit tree inspector in his duties, and to give such public notice as it may deem proper in relation to the disinfecting of store rooms, warehouses and salesrooms whose fruits in either a green or dried state may be stored, handled or offered for sale.

SEC. 6. Any owner, occupant or person in charge of land on which fruit trees are growing who has been notified as provided for in Section 4 of this Act to disinfect his trees or vines, who shall fail or neglect without sufficient cause to comply with said notice, shall, after conviction in a court having jurisdiction, be deemed guilty of a misdemeanor.

SEC. 7. When the owner, occupant or person in charge of premises shall have been convicted on account of neglect or failure to carry out the provisions of Section 6 of this Act, and he still refuses to comply therewith, all infested trees or vines on his premises may be disinfected at the expense of the owner or occupant of the premises.

SEC. 8. Any person who fails to disinfect his store-room, warehouse or salesroom as directed by the fruit-tree inspector, shall be deemed guilty of a misdemeanor.

SEC. 9. All persons importing or exporting trees in any county must get the inspector's certificate that such trees are free from fruit-destroying insects, their larvæ or their pupæ, and a failure to neglect so to do, shall subject them to the penalties provided for in Section 8 of this Act.

SEC. 10. The compensation of the fruit-tree inspector shall be fixed by the county court, and paid out of the county treasury; and all fines collected under the provisions of this Act shall be paid into the county treasury.

SEC. 11. This Act shall take effect from and after its approval.

Reply to Dr. C. C. Miller.

Written for the American Bee Journal

BY REV. W. F. CLARKE.

Your letter in the AMERICAN BEE JOURNAL of May 10th does not mend matters at all. Palaver as you may, you are scholar enough to know that "Rev. Clarke" is not a courteous mode of allusion; nor is it grammatically correct. It is not the omission of the initials that I chiefly find fault with, but the entire *tout ensemble* of the phrase. It is as though I were to refer to you as "Med. Miller." I take no clerical airs, and ask no obeisance from you or anybody else as an ambassador from heaven, because I take no stock in that kind of thing. The Bible says, "Be courteous," and "Honor all men." I am everlastingly down on the familiarities and discourtesies that so often disfigure and degrade our bee-journals.

You say I would overlook the "chuckle" and "gloat" if I realized how badly you have felt over my putting forth such a theory. What right have you to worry about any theory of mine? It is none of your funeral. You intimate that I have made myself ridiculous. I deny it. No theory put forth in good faith will excite ridicule in the breast of a wise man, and as for fools, I am not catering for them.

I made it sufficiently plain that I put forth the sting-trowel theory merely as a matter of opinion, yet you thrust it upon me as a dogmatic and positive assertion of fact, and the simple truth is that, like all fanatics and bigots, you will not permit another to hold an opinion except on grounds that are satisfactory and conclusive to your mind. You would not, you say, hurt a hair of my head, but you have hurt my feelings many times by unkind allusions to the matter, and now insist on my stating a falsehood. This I refuse, point blank, to do, to please you or any other person.

You have nothing to say on the scientific points I raised, so I naturally conclude that you find them unanswerable.

Guelph, Ont.

Bees and Pollination of Blossoms.

BY PROF. A. J. COOK.

[*A Lecture Delivered Before the Southern California Pomological Society at Pasadena, on May 3, 1894.*]

(Continued from page 662).

EXPERIMENTS OF THE DEPARTMENT OF AGRICULTURE.

After commencing this essay, I received Bulletin No. 5, of the Division of Vegetable Pathology, from the United States Department of Agriculture, on the "Pollination of Pear Flowers," by Merton B. Waite. I much regret that I did not receive this in time to fully describe the many valuable experiments, or at least to give a full summary of the important conclusions reached. The experiments seem to have been very carefully planned, very ingenious, and, from our knowledge of the men who had them in charge, we know that they would be very carefully executed. The experiments were conducted at Brock-

port and Rochester, N. Y.; at Chestnut Farm, Virginia, and at Washington, by Mr. Waite; and at Geneva, N. Y., by Mr. D. G. Fairchild.

Thirty-six varieties of pears were under experiment, of which 22 were found self-sterile. Under the head of insect visitors we note the following: "The common honey-bee is the most regular, important and abundant visitor, and probably does more good than any other species." In this connection I have in a recent letter from the distinguished horticulturist, Prof. L. H. Bailey, of Cornell University, the following:

"Bees are much more effective agents in pollination than wind, in our fruits, and their absence is always serious. Various other insects are capable of taking their place to a very limited extent."

Mr. Waite finds that vigor of tree, condition of weather at time of blossom, and visits of insects, are all important factors in securing a crop. The following conclusions close this very valuable Bulletin, which you may all procure by preferring such request to the Department of Agriculture:

1. Many of our common varieties of pears require cross-pollination, being partially or wholly incapable of setting fruit when limited to their own pollen.

2. Some varieties are capable of self-pollination.

3. Cross-pollination is not accomplished by applying pollen from another tree of the same grafted variety, but is secured by using pollen from a tree of a distinct horticultural variety, that is, which has grown from a distinct seed. Pollen from another tree of the same variety is no better than from the same tree. The failure to fruit is due to the sterility of the pollen, and not to mechanical causes.

4. The impotency of the pollen is not due to any deficiency of its own, but to the lack of affinity between the pollen and the ovules of the same variety.

5. The pollen of two varieties may be asolutely self-sterile, and at the same time perfectly cross-fertile.

6. The state of nutrition of the tree, and its general environment affects its ability to set fruit either with its own pollen or that of another tree.

7. Bees and other insects are the agents for the transportation of pollen.

8. Bad weather during flowering-time has a decidedly injurious influence on fruitage, by keeping away insect visitors and also by affecting the fecundation of the flowers; conversely, fine weather favors cross-pollination and the setting of fruit.

9. Pears produced by self-pollination are very uniform in shape; they differ from crosses not only in size and shape, but also in some cases in time of maturity and in flavor.

10. Among the crosses the differences were slight or variable, so that their variations are not to be ascribed with certainty to differences in pollen.

11. Self-fecundated pears are deficient in seeds, usually having only abortive seeds, while the crosses are well supplied with sound seeds.

12. Even with those varieties which are capable of self-fecundation, the pollen of another variety is prepotent, and unless the entrance of foreign pollen be prevented, the greater number of fruits will be affected by it, as shown by the study of Buffum pears.

13. The normal typical fruits, and in most cases the largest and finest specimens either of the self-sterile or self-fertile sorts, are crosses.

PRACTICAL CONCLUSIONS.

1. Plant mixed orchards, or at least avoid planting solid blocks of one variety. It is not desirable to have more than three or four rows of one variety together, unless experience has shown it to be perfectly self-fertile.

2. Where large blocks of trees of one variety which blossomed well have failed to fruit for a series of years, without any apparent reason, it is exceedingly probable that the failure is due to lack of cross-pollination. The remedy is to graft in other varieties, and supply foreign pollen.

3. Be sure that there are sufficient bees in the neighborhood, or within two or three miles, to properly visit the blossoms. When feasible, endeavor to favor insect visits to the blossoms by selecting sheltered situations, or by planting wind-breaks.

As I have already stated, pollen may be carried by wind or insects. I have already quoted from Prof. Bailey to the effect that in our fruits bees are much more effective agents in pollination than is the wind. This needs no argument, as the bees must be far more certain and effective factors in this important work. The thick foliage would serve as a screen to prevent pollination by the wind, while it is no bar to insect visits.

Among insects I have found this season, at Claremont, that the honey-bee is present a hundred to one of any other

large insect that could pollinate the flowers. We have noted that Prof. Bailey and Mr. Waite both emphasize the importance of the honey-bee in this necessary process of cross-pollination. For about two weeks the past season, one of our largest and most beautiful sphinx moths, *Deilephila lineata*, was exceedingly common. These hummingbird moths are very quick and active, and it is not uncommon to see great loads of pollen on their long tongues, so they must do valuable service in cross-pollination. There were several species of wild bees, Bombus, Xylocopa, Andrena, Helictus, etc., and a few species of Noctuid moths. But with the large and numerous orchards of this regions, and in all the fruit sections of California, it is necessary to take action to supplement the good work of other nectar-loving insects with that of the more numerous and efficient honey-bees. All other insects are sure to be fitful; they may be present in swarms one season, and nearly or quite absent the next, while here in California there need never be, should never be, a scarcity of honey-bees close by—I should say within one mile—not two or three, as does Mr. Waite.

Bees do not succumb to the California winters as they do to those in the East; and so they will always be out in force in the early spring when the fruit-trees fling out their myriads of beautiful signals to attract laborers which they ever stand ready to recompense liberally for service done.

The experiments of Mr. Fairchild at Geneva, N. Y., who applied spray continuously to blossoms, show that too much wet prevents pollination. The experiments of Dr. B. D. Halsted, of New Jersey (Report of New Jersey Station, 1889), proved that pollen continuously wet is impotent. As pollen grows in water, is it not probable that these failures resulted from the fact that the wet pollen cannot reach the seed bed; the stigma? Rains may wash the pollen off, or prevent its reaching the stigma in condition to grow, but, I take it, that here in California either event will be the rare exception. The foliage stands as a huge umbrella to prevent the washing which can occur only in very severe rains, and heavy rains are too infrequent to prevent the transfer of dry and suitable pollen at some period of bloom. So the most we may fear from rains is that they may shut the bees in the hives.

Cold winds and rains may work such mischief, occasionally, to a limited extent, even in this favored region, though the long season of bloom makes even such partial disaster unlikely. Abundant bees close at hand, with windscreens to favor flight, will make them exceedingly rare and improbable. We all know that too heavy bearing is not desirable, and I believe that the weather will nearly always permit enough visits of bees, if we encourage their visits as suggested as above, to secure as much fruit every season as will be desirable and profitable.

We need more of such experimentation in Southern California. But we may wisely urge even now the setting of mixed varieties of our various fruits, and those that blossom at the same time, in contiguous rows, or, at least, near together, and that a good apiary be within a mile of every large orchard. If we observe these precautions, and care well for our orchards, that the trees may be kept in full strength and vigor, I am persuaded that in this land of warmth, sunshine, and exceeding fertility, we may reasonably expect a full crop of fruit each season.

Claremont, Calif.

CONVENTION DIRECTORY.

Time and place of meeting.

1894.

June 15, 16.—Eastern Kansas, at Bronson.
J. C. Balch, Sec., Bronson, Kans.

Aug. 16.—East Tennessee, at Whitesburg, Tenn
H. F. Coleman, Sec., Sneedville, Tenn.

1895.

Feb. 8, 9.—Wisconsin, at Madison, Wis.
J. W. Vance, Cor. Sec., Madison, Wis.

☞ **In order to have this table complete, Secretaries are requested to forward full particulars of the time and the place of each future meeting.—THE EDITOR.**

North American Bee-Keepers' Association

PRES.—Emerson T. Abbott.....St. Joseph, Mo.
VICE-PRES.—O. L. Hershiser....Buffalo, N. Y.
SECRETARY—Frank Benton, Washington, D. C.
TREASURER—George W. York...Chicago, Ills.

National Bee-Keepers' Union.

PRESIDENT—Hon. R. L. Taylor..Lapeer, Mich.
GEN'L MANAGER—T. G. Newman, Chicago, Ill.
147 South Western Avenue.

One-Cent Postage Stamps we prefer whenever it is necessary to send stamps for fractions of a dollar. By remembering this, you will greatly oblige us.

☞ Do not write anything for publication on the same sheet of paper with business matters, unless it can be torn apart without interfering with either part of the letter.

Can Hardly Estimate Its Value.

Little more than a year ago I was induced by some friends to subscribe for the AMERICAN BEE JOURNAL—the first bee-literature I ever read; and as I had 5 colonies to start with, I can hardly estimate the value it has been to me. And living in Texas, as I do, of course I read "In Sunny Southland" *first*. I am very much interested in the lessons we learn from Mrs. Jennie Atchley. Long live the AMERICAN BEE JOURNAL and "In Sunny Southland!"

Texas, May 11, 1894. D. BUCHANAN.

Wintered Well.

Bees have wintered well here. We have 59 colonies, and lost two. Some of our neighbors have not lost any.

GEO. VANDEWARKER.

Brown City, Mich., May 16.

Eight or 10 Frame Hive—Which?

The proceedings of the Colorado State Association do not usually get in the BEE JOURNAL, on account of the great difference in local conditions between here and the East. But the essay of Mrs. Axtell, read at the last meeting of the North American shows that there are at least a few in agreement with us in spite of the conditions. (Vol. XXXII, page 596.)

Being interested in the comparative merits of 8 and 10 frame hives for comb honey, I put this query in the question-box at their last meeting: "Why should the 10-frame hive be recommended for comb honey in Colorado?" The replies were like the parts of the one-horse shay—all alike in vigor. Many bore on the local points; but the following, which may be taken as the summing-up of the feeling of the members present, indicates, I think, certain principles which can hardly be called merely local, namely: that if "time, and labor, and thought, and care, and material, and capital, are all money," as Mr. R. L. Taylor expressed it several years ago in the *Review*, yet the saving time, labor, thought, and care in using 10-frames, which are automatically self-regulating to a much greater extent than the 8-frame hives, quite overbalanced the increased expenditure of capital; and that this increased capital is really a much slighter element than it is made out to be, since it does not consist in running expenses, but in first cost. The large comb-honey producers present strongly upheld the value of those outside combs which remain filled with honey from year to year.

F. L. THOMPSON.

Arvada, Colo.

Scarcity of White Clover.

The Arctic wave that struck Central Illinois in March, killed all the white clover; not a plant is to be seen in all the pastures that I have examined around here. I don't know what bee-keepers are going to do for clover honey, and how are we going to bridge the bees over until linden? That is full of buds, but will bloom in June, ahead of its natural time, which is in July here, about the 1st to the 15th or 18th; and the question is, whether we will get honey from bloom that comes before its time.

The heart's-ease is plentiful, and we may get a fall flow of that. If we don't, what will bridge us over until next year? Perhaps we will have to join Coxey's commonweal army; but let us cling to the anchor of hope, for a bad beginning may yet have a good ending.

GEO. POINDEXTER.

Kenney, Ill., May 12.

Colonies Building Up Fast.

Bees are building up fast now. My bees are not as strong as I would like—the cold weather weakened them greatly. I have lost four colonies by swarming out.

THEO. F. CRAIG.

Otwell, Ind., May 21.

Bees Booming in Kansas.

Bees are booming in Kansas this spring. The weather has been the best for bees since Easter that I remember ever to have seen. We have had very few long, cold rains, and no snow. The bees had the benefit of all the apple blossoms, and pretty much all other blossoms, and the consequence is they are full and running over with brood and young bees, and if we had white clover now, we would have swarms in a few days; but we have but little white clover in this part of the State; and there is almost nothing in bloom now. But the rock moss will bloom in a week or two, then the first of June the balled mint (some call it Texas horsemint) will begin to bloom, and it will last for a month or more, and if there is enough of it the bees will gather a rich harvest of beautiful white and richly-flavored honey.

A good many bees died here the past winter, as we have had two bad years in succession with no swarming, and I think the cause was that so many colonies had old and worthless queens that died during the winter, and left the colony with a few old bees, so that when spring came they were not able to guard the entrance, and

had no energy, and the other colonies robbed them. Some bee-keepers transferred too late in the season, and did not feed up properly (myself, for one). I lost 10 colonies in that way during the winter. I traded for them in August, and transferred them, and intended them to fill up on the fall flowers, and supposed they had, as they were very heavy in the fall, but I think now it was mostly brood instead of honey.

J. C. BALCH.

Bronson, Kans., May 11.

A Migrating Bee-Man.

I go now for the white clover fields, and hope for a honey crop in June and July. My bees on scales in Daytona recorded 185 pounds up to date, being 82 pounds from orange bloom, and the balance from gum, myrtle, bay and saw palmetto bloom. Just now I feel the better way is for the man to *migrate* and leave the bees at home. It is cheaper, quicker, and less trouble. It has done well this season.

DR. JESSE OREN.

Daytona, Fla., May 21.

[Dr. Oren's address hereafter will be Mt. Auburn, Iowa.—EDITOR.]

Snow Instead of Swarms.

Last evening it began to snow, and this morning the tops of the ridges are white. It now seems that there can be no hope for any surplus honey here this year. So far bees have lived from hand to mouth, and if this weather continues three days, they will nearly all starve if not fed. Our swarming season usually begins here by May 10th, and you cannot imagine how strange it looks to see the tops of the ridges covered with snow ten days after the swarming season should begin. Our bee-men are greatly discouraged.

H. F. COLEMAN.

Sneedville, Tenn., May 20.

Successful Wintering of Bees.

Myself and all my neighbors winter our bees on the summer stands, in single-walled 8-frame Langstroth hives, without any protection, with the mercury as low as 10 to 15 degrees below zero, and we lose only about one per cent., and they are lost by starvation. B. Taylor says, on page 500, that failure in wintering bees comes from a poor honey-flow. I think he is a little mistaken, for I have had the poorest honey-flow in 1893 that I have had in nine years, and mine and my neighbors' bees all wintered well.

The way I winter my bees is this:

1st. I never extract any honey from the brood-chamber.

2nd. I never feed any sugar syrup in the fall. If I have any feeding to do, I feed early in the spring when bees can fly freely. I do not believe that bees can be wintered well on sugar syrup in any condition, because it does not keep up the heat as does honey.

I do not believe in cellar-wintering. From all the accounts that I can see, spring dwindling and diarrhea are caused by cellar-wintering. I think that bees wintered in warm cellars, and taken out of the cellar in the spring, get chilled, causing disease. I have been keeping bees for nine years, and I have not had a single case of spring dwindling. Now I do not say that it is not necessary to winter bees in the cellar in the far North, where the mercury gets down as low as 30 to 40 degrees below zero, and even then I would prefer a chaff hive.

Oraville, Ill. PHILLIP RATH.

Prospects Not Good.

It has been very dry, cold and frosty here the last six days, and begins to look bad, for my bees are breeding up well—in fact, better than any others I know of. They are well protected with chaff hives, two in a case. Some small, unprotected hives are throwing out lots of dead brood.

E. H. STURTEVANT.

Fort Ann, N. Y., May 16.

Well Pleased—Prospects Never Better

I feel so well pleased with the AMERICAN BEE JOURNAL that it is my duty to let you know of some of the benefits received. Last summer, I read in it about putting hives in trees to catch swarms. I put out three on different trees, and caught one swarm; it wintered well, and is worth $10 to-day.

Bees wintered well here. I put 9 colonies in the cellar, and they all came out in good condition. Drones are flying now, and the bees will swarm from two to three weeks earlier than they have for a number of years. The prospects never were better, because the bees will have swarmed and be ready for white clover, which generally begins to bloom about June 10th.

SAMUEL TAYLOR.

Waupaca, Wis., May 16.

With Fun in His Eye.

At last the "Old Reliable" has caused my pen to vibrate. For a long time I have wanted to see the portraits of Bros. York and A. I. Root, but have waited and waited in vain. That noble cut of G. M. D. (page 512) is grand; but say, G. M., what's the matter with the hat? Is it fly-time, or have you been too close to the hive? I presume it is the latter, by the tear on that classical cheek.

And Walter, on the same page—he has something of the cut of a Beecher. Then, he looks like Bill Nye a little. Say, Walter, would you like one of my old wigs?

But the richness of those cuts hasten me on to get to other and more classical brows. My eye is riveted on page 511. Say, Thos. G., is that an old straw skep just above and back of the forehead? And what are you fixed up so for—to go among the B's to sell supplies? or did you sit to show off best? My, though, but those eyes are

heart broken! And I see you toot your own horn like that bicycle rider in dress suit, on page 508. Now, isn't that a noble head? I have heard of a number having Henry *Clay* heads; but a head like that—oh, my! Say, Uncle Amos, isn't that corporation a daisy for a bicycle rider? Now, don't try to write any more dyspeptic articles and temperance oracles—if that isn't a product of bees, then I'm mistaken!

Now, Bro. York, try to get your photo' in so that we may take them all and place them in the album.

But I must not dwell on these things that please the eye and tickle the children. Bees are in fine condition, and prospects never looked better.

Denver, Colo., May 11. D. L. TRACY.

Rich Fruit-Bloom—White Clover.

Bees are doing well here now. We are having a good honey-flow from black locust, raspberry, yellow willow, ground ivy, and some buckeye and hoghaw, that were a little late, are still being worked. The fruit-bloom was very rich here this year, and the frames are nearly solid with brood. The white clover is thicker than I ever saw it before, and I don't see anything in the way now to prevent a good surplus. We had the heaviest rainfall here yesterday afternoon and last night that we have had for years—in the evening about three-fourths of an hour, and at night a steady down-pour for about four hours. This morning at 8:30 it is clear, bright and lovely. I. E. KEYS.

Frankfort, Ind., May 16.

A Pretty Good Record.

As I have two or three times given in the BEE JOURNAL (see Vol. XXIX, page 703, and Vol. XXXII, page 665) my method of preparing bees for winter, I will again report the result.

During the last days of April I examined my bees, and found every colony strong in bees and stores, seeing either capped brood or the queen in every hive. They have built up steadily, and to-day have commenced swarming.

All my hives—25 in number, having sold one colony—are full of bees and brood, and apparently ready to swarm. As we are just now in the midst of a large fruit-bloom, I shall expect swarming to continue.

Is not this a pretty good record for the cold hills of Central New Hampshire?

J. P. SMITH.

Sunapee, N. H., May 22.

Convention Notices.

WISCONSIN.—The next annual meeting of the Wisconsin Bee-Keepers' Association will be held at Madison, on Feb. 8th and 9th, 1895.

Madison, Wis. J. W. VANCE, Cor. Sec.

TENNESSEE.—The next annual meeting of the East Tennessee, Bee-Keepers' Association will be held at Whitesburg, Tenn., beginning on Thursday, August 16, 1894. All members and other interested in bee-culture are invited to attend. H. F. COLEMAN, Sec.

Sneedville, Tenn.

KANSAS.—There will be a meeting of the Southeastern Kansas Bee-Keepers' Association at the apiaries of J. C. Balch, 7 miles south of Bronson, to be held June 15 and 16. Bring well-filled baskets and we will have a glorious good time. Plenty of pasture for horses, and shade and good water for man and beast. J. C. BALCH, Sec.

Bronson, Kans.

Honey & Beeswax Market Quotations.

ALBANY, N. Y., Mar. 23.—The honey market is very slow now. The demand is about over on comb. Some extracted wanted at 6c.; if dark color, 5c.

Beeswax, 26@27c. H. R. W.

BUFFALO, N. Y., May 14.—Trade is very slow, and we have still a liberal stock on hand. We quote: Fancy comb, 13@14c.; choice, 11@12c.; dark and common grades, 8@9c. Beeswax, 25@30c. B. & Co.

CHICAGO, ILL., May 10.—The market for comb honey is not of large volume at this season of the year; a fine article of white comb brings 15c. in pound sections. Extracted slow of sale, at 4@6c. Beeswax, 25c.

R. A. B. & Co.

CHICAGO, ILL., Mar. 24.—The honey market will be very quiet for the balance of the season. We will not do much business until new honey comes in. We cannot quote prices but will obtain the best possible price on what little stock we will sell until early fall. Beeswax is very active at 25@26c. J. A. L.

CINCINNATI, O., May 21.—Demand is very slow for extracted honey at 4@7c. Supply is large. Prices for comb honey are nominal, at 12@14c. for best white. Demand is slow.

Beeswax is in good demand, at 22@27c. for good to choice yellow. Supply is scant, and not enough arriving to supply our home trade. C. F. M. & S.

KANSAS CITY, MO., Apr. 6.—We have had an exceedingly slow trade on honey this season, and prices ruled comparatively low. We quote to-day: No. 1 white comb, 1-lb., 14@15c.; No. 2, 13@14c.; No. 1 amber, 12@13c.; No. 2, 10@11c. Extracted, 5@7c.

Beeswax, 20@22c. C.-M. C. Co.

Queens and Queen-Rearing.—If you want to know how to have queens fertilized in upper stories while the old queen is still laying below; how you may *safely introduce* any queen, at any time of the year when bees can fly; all about the different races of bees; all about shipping queens, queen-cages, candy for queen-cages, etc.; all about forming nuclei, multiplying or uniting bees, or weak colonies, etc.; or, in fact, everything about the queen-business which you may want to know—send for Doolittle's "Scientific Queen-Rearning"—a book of over 170 pages, which is as interesting as a story. Here are some good offers of this excellent book:

Bound in cloth, postpaid, $1.00; or clubbed with the BEE JOURNAL for one year—both for only $1.65; or given free as a premium for sending us three new subscribers to the BEE JOURNAL for a year at $1.00 each.

Bound in paper cover, postpaid, 65 cents; or given free as a premium for sending us two new subscribers; or clubbed with the BEE JOURNAL a year—both for only $1.40. Send all orders to the BEE JOURNAL office.

Capons and Caponizing, by Edward Warren Sawyer, M. D., Fanny Field, and others. It shows in clear language and illustrations all about caponizing fowls; and thus how to make the most money in poultry-raising. Every poultry-keeper should have it. Price, postpaid, 30 cents; or clubbed with BEE JOURNAL one year, for $1.10.

Never Behind on Orders.—F. C. Morrow, of Wallaceburg, Ark., sends out good queens, and is never behind on orders. See his advertisement on page 676.

List of Honey and Beeswax Dealers,

Most of whom Quote in this Journal.

Chicago, Ills.

J. A. LAMON, 43 South Water St.
R. A. BURNETT & Co., 161 South Water Street.

New York, N. Y.

F. I. SAGE & SON, 183 Reade Street.
HILDRETH BROS. & SEGELKEN, 28 & 30 West Broadway.
CHAS. ISRAEL & BROS., 110 Hudson St.

Kansas City, Mo.

HAMBLIN & BEARSS, 514 Walnut Street.
CLEMOMS-MASON COM. CO., 521 Walnut St.

Albany, N. Y.

H. R. WRIGHT, 326 & 328 Broadway.

Buffalo, N. Y.

BATTERSON & CO., 167 & 169 Scott St.

Hamilton, Ills.

CHAS. DADANT & SON.

Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central avs.

Don't Fail to Read All of Page 675!